

Sub
A1.

1 A system comprising:
2 a least three processors; and
3 an optical transceiver coupled to each processor,
4 each transceiver including a wavelength division
5 multiplexer to enable optical communication with the other
two processors.

1 2. The system of claim 1 wherein each transceiver
2 includes an optical transmitter including a laser.

1 3. The system of claim 1 wherein each transceiver
2 includes an optical receiver tunable to a particular input
3 wavelength.

1 4. The system of claim 1 wherein each processor is
2 assigned a wavelength for communicating with the other
3 processors.

1 5. The system of claim 1 wherein said transceiver
2 includes a reflective wavelength coupler.

1 6. The system of claim 5 wherein said reflective
2 wavelength coupler includes an elliptical reflector.

1 7. The system of claim 6 wherein said coupler
2 includes an dispersive element to disperse light reflected
3 by said reflector.

1 8. The system of claim 7 wherein said dispersive
2 element includes a microelectromechanical structure.

1 9. The system of claim 1 wherein each transceiver
2 transmits a light beam together with a code identifying a
3 sending and a receiving processor.

1 10. The system of claim 1 wherein, when one processor
2 is receiving a wavelength division multiplexed signal from
3 another processor, the one processor broadcasts to all
4 other processors that the one processor is busy.

1 11. A method comprising:
2 establishing a system including at least three
3 processors; and
4 enabling optical communications between said
5 processors using wavelength division multiplexing.

1 12. The method of claim 11 including assigning a
2 unique wavelength to each of said processors.

1 13. The method of claim 11 including scanning for the
2 wavelengths of any of said other processors.

1 14. The method of claim 13 including transmitting a
2 light beam having a predetermined wavelength, and
3 transmitting a code that identifies the transmitting
4 processor and the intended receiving processor.

1 15. The method of claim 14 wherein the receiving
2 processor identifies the wavelength of the incoming beam
3 and the code accompanying said beam, and locks to the
4 wavelength of the transmitting processor.

1 16. The method of claim 15 including notifying a
2 first processor when a second processor is receiving a beam
3 from a third processor.

1 17. The method of claim 16 including broadcasting the
2 fact that the second processor is receiving a beam to all
3 other processors in the system.

1 18. The method of claim 17 indicating when said
2 second processor is no longer communicating with said third
3 processor.

1 19. The method of claim 19 including using a code
2 transmitted by the third processor to determine if a given
3 processor is the intended recipient of a beam transmitted
4 from the third processor.

1 20. The method of claim 11 including optically
2 interconnecting each of said processors.

1 21. An article comprising a medium storing
2 instructions that enable a first processor-based system to:
3 identify a light communication from a second
4 processor-based system intended for said first processor-
5 based system;
6 tune to said wavelength; and
7 notify a third processor-based system that said
8 first processor-based system is tuned to said wavelength.

1 22. The article of claim 21 further storing
2 instructions that enable the first processor-based system
3 to scan through a plurality of wavelengths of other
4 processor-based systems to identify a signal intended for
5 said first processor-based system.

1 23. The article of claim 21 further storing
2 instructions that enable the first processor-based system
3 to receive a code that indicates whether a given light

4 communication is intended to be sent to said first
5 processor-based system.

1 24. The article of claim 23 further storing
2 instructions that enable said first processor-based system
3 to tune to said wavelength to the exclusion of other
4 wavelengths.

1 25. The article of claim 24 further storing
2 instructions that enable said first processor-based system
3 to broadcast a signal indicating that said first processor-
4 based system is tuned exclusively to said wavelength.

1 26. The article of claim 25 further storing
2 instructions that enable the first processor-based system
3 to notify a third processor-based system when said first
4 processor-based system is no longer engaged in a
5 communication with said second processor-based system.

1 27. The article of claim 21 further storing
2 instructions that enable said first processor-based system
3 to identify a second processor-based system to communicate
4 with and to determine whether said second processor-based
5 system is currently occupied with a communication with
6 another processor-based system.

1 28. The article of claim 21 further storing
2 instructions that enable said first processor-based system
3 to communicate with at least two other processor-based
4 systems using optical communications and wavelength
5 division multiplexing.

1 29. The article of claim 28 further storing
2 instructions that enable said first processor-based system
3 to communicate with other processor-based systems using an
4 assigned wavelength.

1 30. The article of claim 29 further storing
2 instructions that enable said first processor-based system
3 to transmit a code that identifies said first processor-
4 based system and an intended receiving processor-based
5 system.